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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 926,260	10 03 2001	Noriyuki Suzuki	011268	8663

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EXAMINER

WYROZEBSKI LEE, KATARZYNA I

ART UNIT

PAPER NUMBER

1714

DATE MAILED: 07 09 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,260

Applicant(s)

SUZUKI ET AL.

Examiner

Katarzyna Wyrozebski Lee

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other

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In view of claim limitations such as the average number of platelets having a particular particle size such as diameter and are utilized in the amount that lie squarely in the middle of the amount of clay utilized in the present invention condition c of claim 1 will be inherently satisfied.

In addition in each process where the melt-processing of the application is conducted at 280°C, and the amount of the clay utilized is also within the range utilized in present invention, it is examiner's position, that the viscosity of the composition is within the same range, especially when the composition has to have viscosity in a certain range in order to be extruded.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Matabayas (WO 98/29499).

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The prior art of Matabayas discloses polyester/platelet nanocomposite processed via melt extrusion at a temperature of 280°C (see examples).

According to claim 9 of Matabayas, platelets are layered clays such as mica, smectite clays such as montmorillonite, bentonite, hectorite and the like. Claim 1 also discloses that the amount of clay in polyester nanocomposite is 0.01-25 wt%. Since the amount of the platelets in the composition of Matabayas lies squarely in the middle of the amounts of the present invention, the amount of the platelets in 100 square micrometers lies also within the limitations of the present claims. According to claim 8 of the prior art of Matabayas, clay component has thickness of less than 2 nm (20 angstroms) and diameter of 10-2000 nm (100-20,000 angstroms). The aspect ratio when calculated from the above numbers would be 5-1000. In more preferred or narrower embodiment, the diameter of the platelets is in a range of 10-1000 nm (page 5, lines 9-11).

The polyester of the prior art of Matabayas discloses a composite, which according to the example on page 22 (lines 17-19) has intrinsic viscosity of 0.7 dL/g and low shear melt viscosity of 261×10^3 P at a temperature of 280°C. Table 2 of the prior art of Matabayas further discloses shear melt viscosity in a range of $0.04-139 \times 10^3$ P also at 280°C. Although the prior art of Matabayas did not provide specific ratios as required by the present invention, the limitations of the claims are bound to be inherent for the following reasons. The pressure (torr), the extruder speed (rpm) and the temperature (usually 280°C) in the prior art of Matabayas are encompassed by the pressure, extruder speed and temperature of the present invention. Therefore the polyester of Matabayas requires approximately the same conditions to form nanocomposite and the polyester of the present invention.

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According to the process of the prior art of Matabayas, treated or untreated platelets can be dispersed in the dispersing medium such as water and glycols prior to or during contact with polyester components such as monomers (page 10, lines 3-6). In example on page 22 (line 9) discloses that the oligomer as well as monomer can be utilized and then polymerized to form a polyester nanocomposite.

Additives that can be utilized in the composition of the prior art of Matabayas include glass fibers (page 12, line 15).

In the light of the above disclosure, the prior art of Matabayas anticipates the requirements of claims rejected above.

3. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Suzuki (JP 11-71509).

The applicant is provided with translation of the JP document in order to be able to arrive with an argument. As a recap, the prior art of Suzuki discloses the process in which the composite is prepared. The clay platelets, the conditions by which the composite was obtained as well as the polymeric components of the prior art of Suzuki are within the scope of the present invention.

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matabayas (WO 98/29499) in view of Ohara (JP 9-143359)

The discussion of the disclosure of the prior art of Matabayas from paragraph 2 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of Matabayas is addition of the polycarbonate into the molding composition.

With respect to the above difference the prior art of Ohara discloses composition comprising polycarbonate, polyester and intercalated clay containing onium ions.

The addition of the polycarbonate results in a composition having good mold flow properties and does not allow burr to appear. The composition has also good chemical resistance and heat resistance.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize combination of polyester and polycarbonate in order to form a nanocomposite of Matabayas and thereby obtain the claimed invention. Addition of polycarbonate would not impair the properties of the composition of the prior art of Matabayas and in fact it would have good mold flow, chemical resistance and heat resistance.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Following disclosures also read on applicant's claims: Frisk (US 5,972,448), Barbee (US 6,071,988) and (US 6,034,163), Trexler (US 6,359,052) and (US 6,162,857), Bragodia (US 6,337,046) and Matabayas (US 6,084,019).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski Lee whose telephone number is (703) 306-5875. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (703) 306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


KIWL

July 2, 2003